

FIG. 1
PRIOR ART

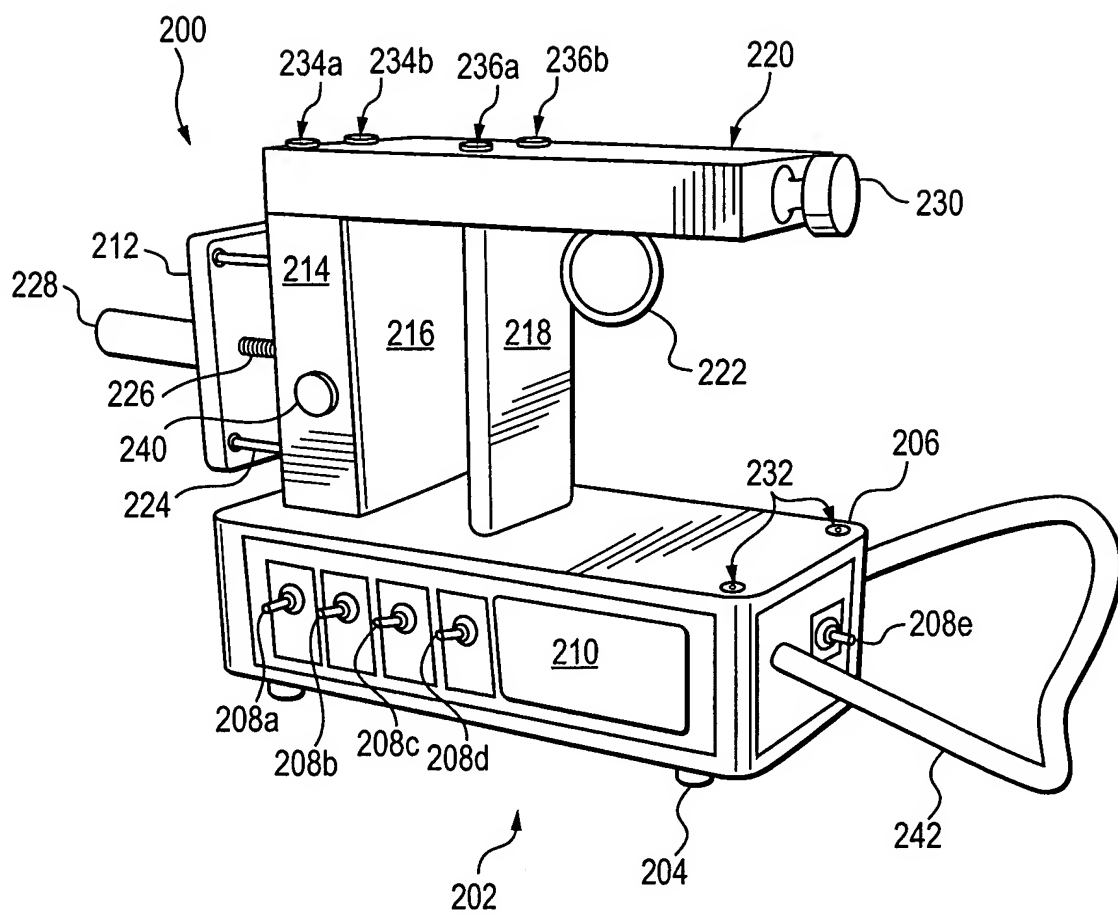


FIG. 2A

REPLACEMENT SHEET

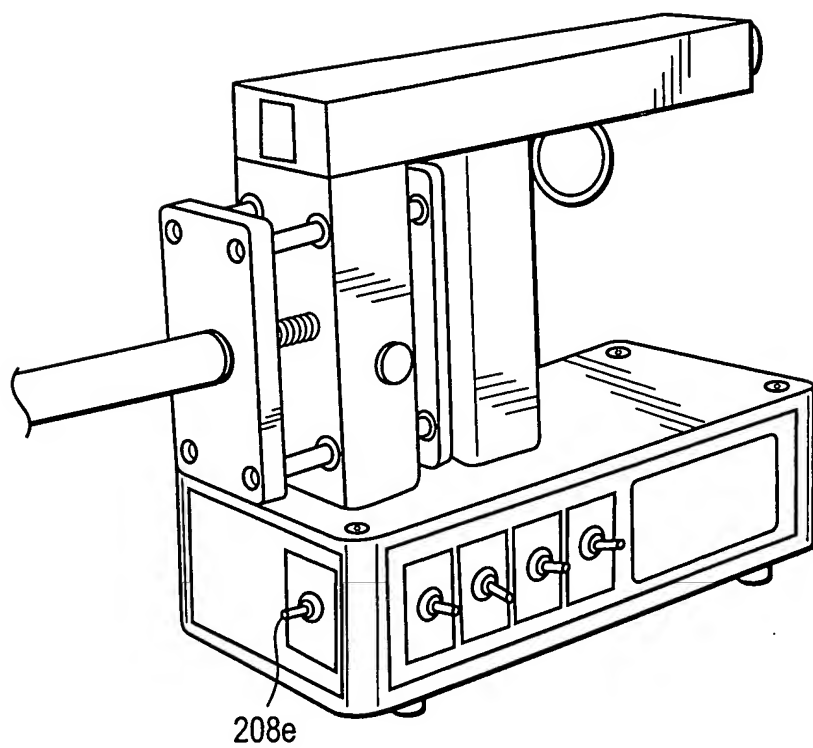


FIG. 2B

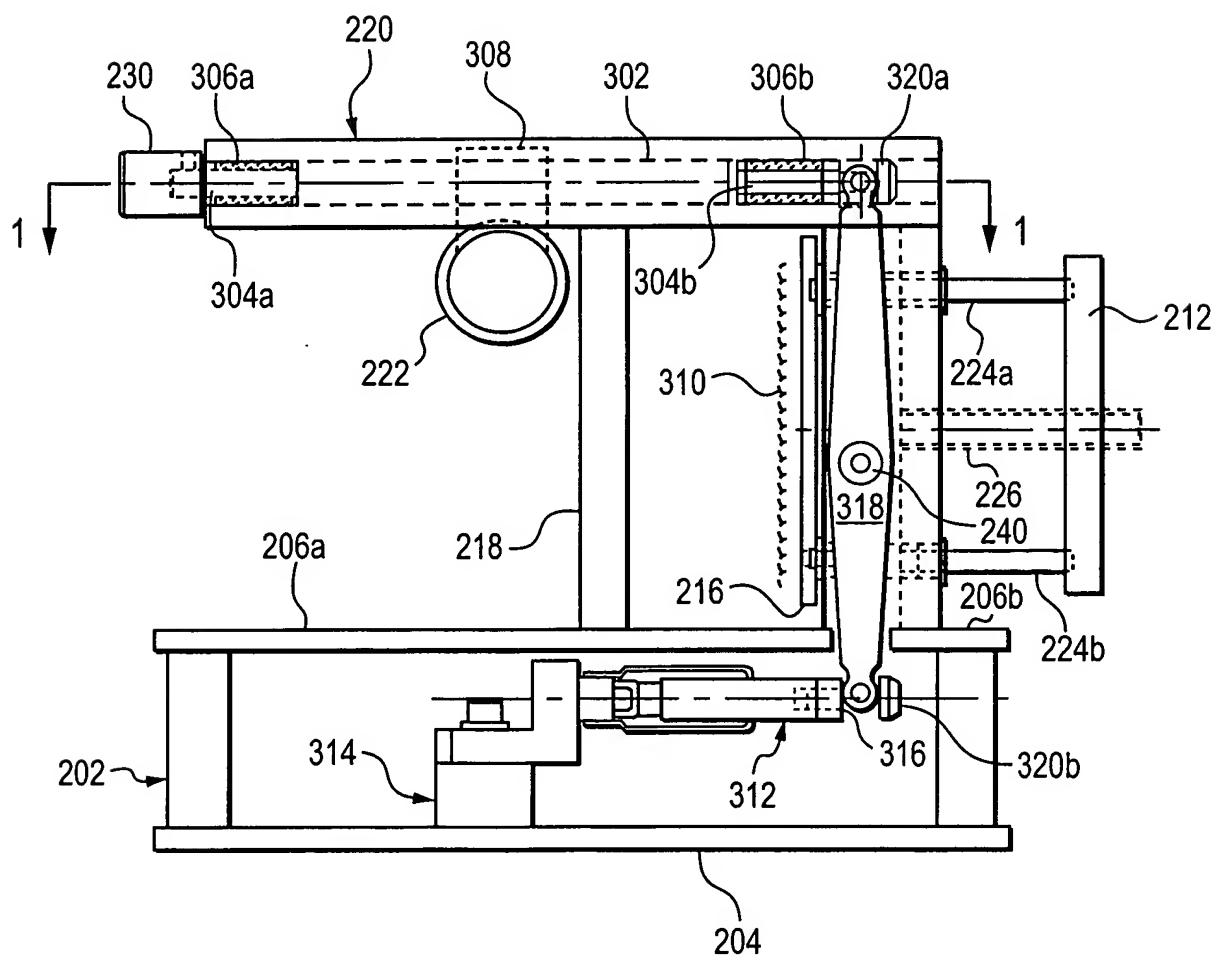


FIG. 3

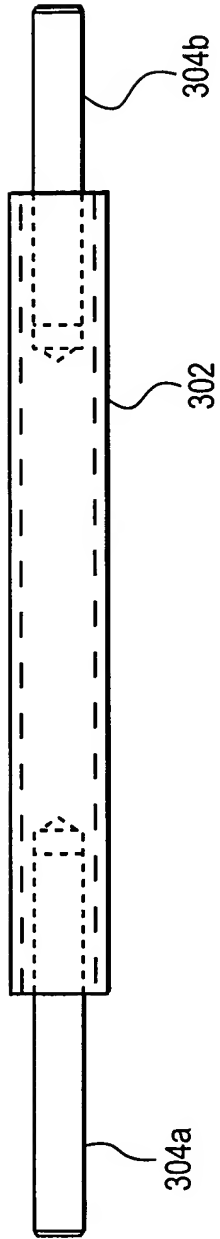


FIG. 4

REPLACEMENT SHEET

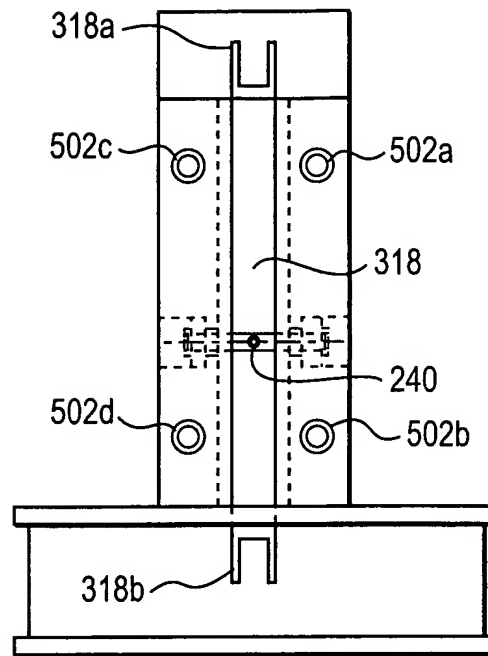


FIG. 5

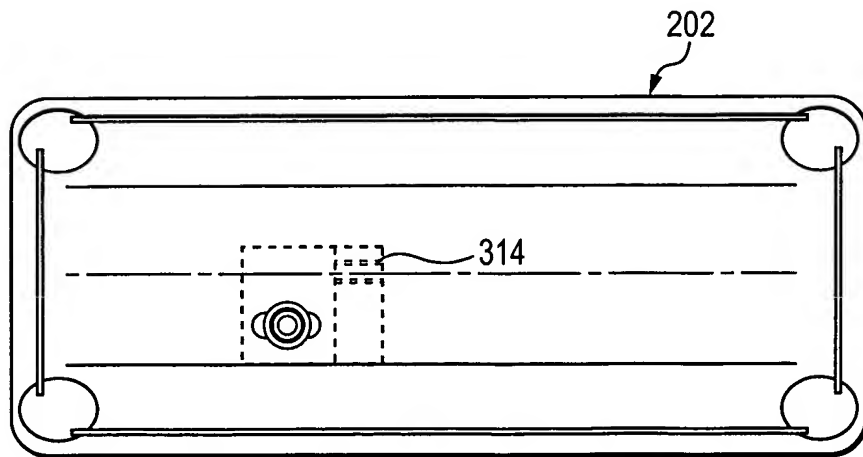


FIG. 6

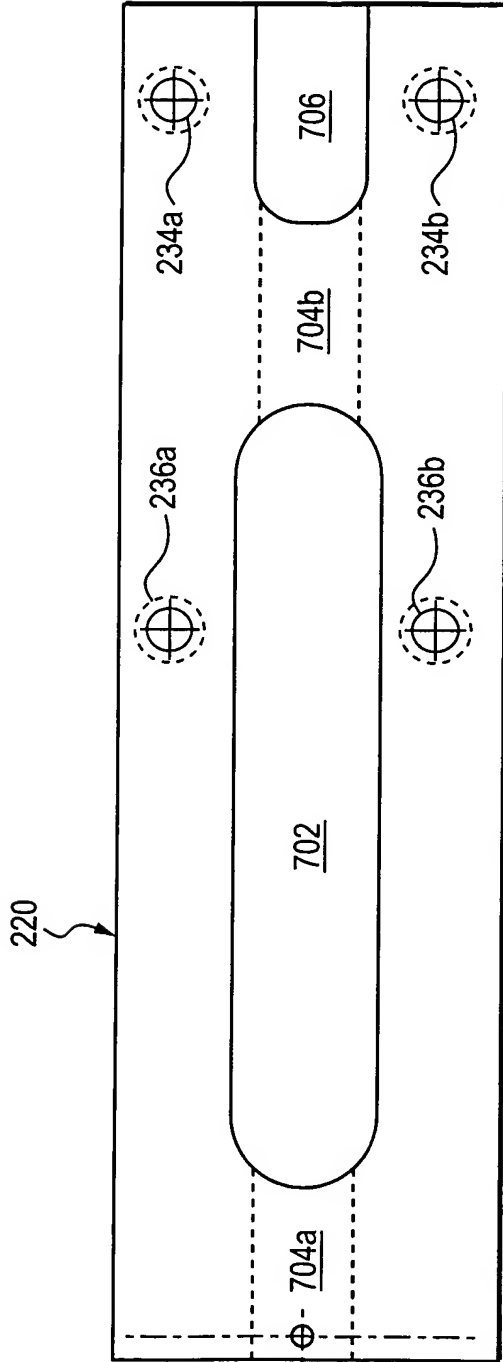


FIG. 7A

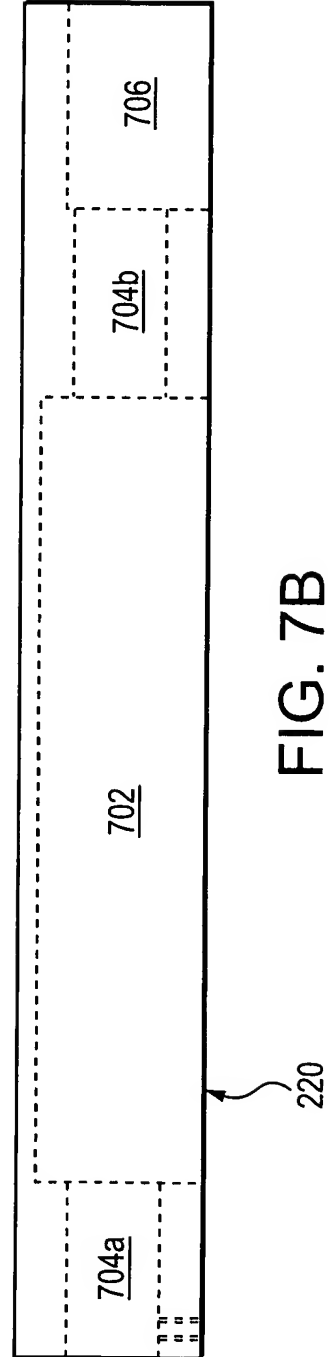


FIG. 7B

REPLACEMENT SHEET

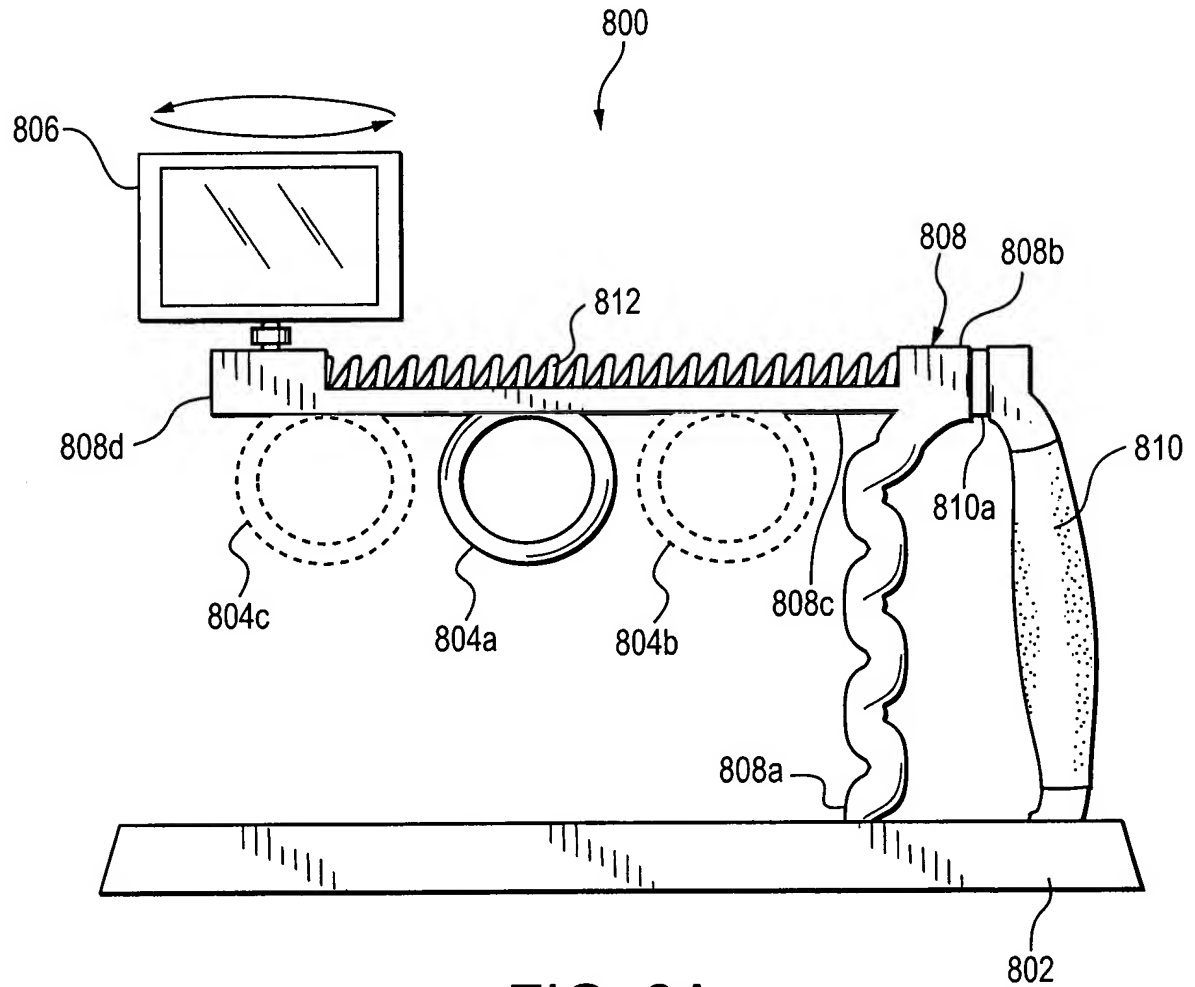


FIG. 8A

REPLACEMENT SHEET

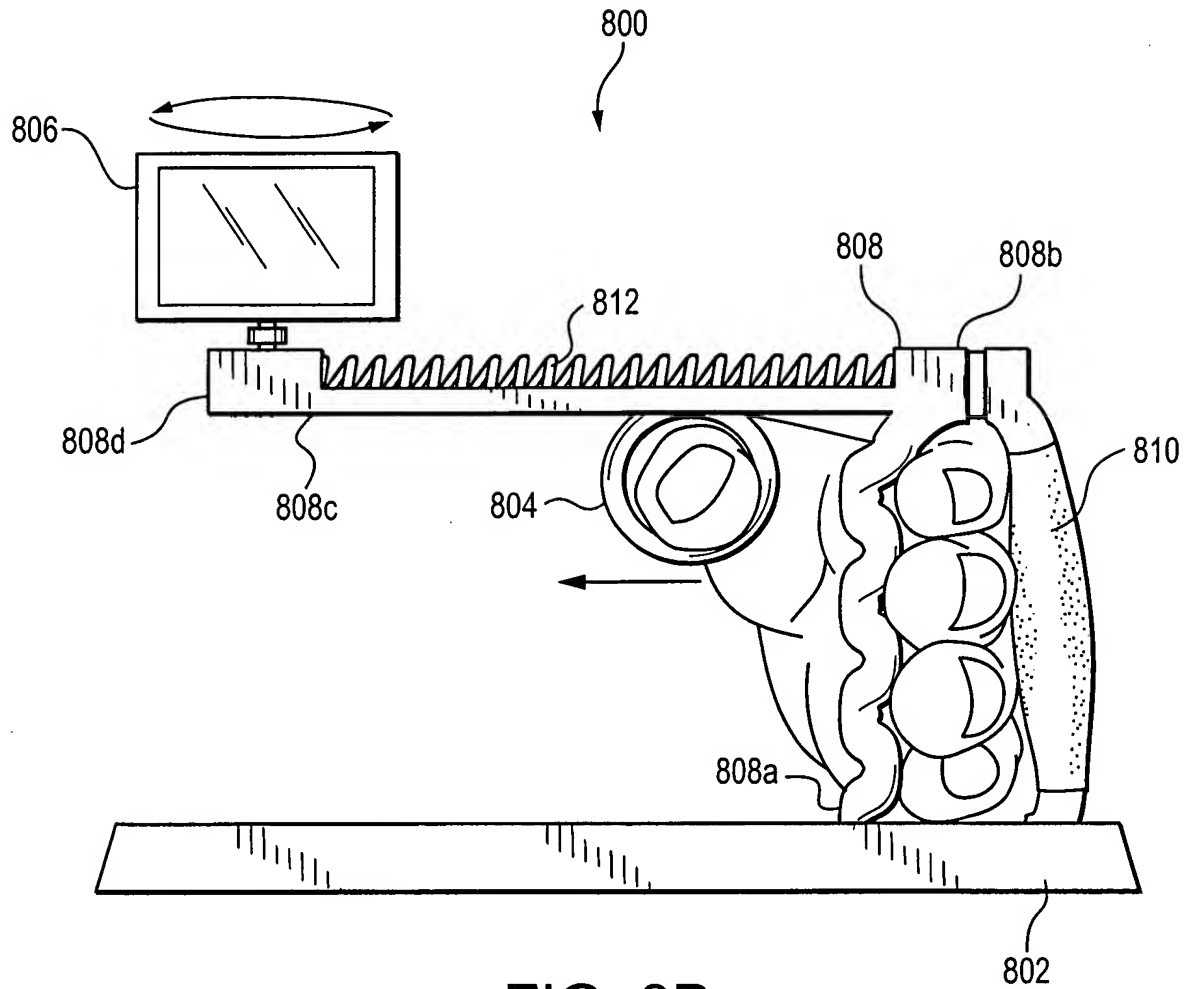


FIG. 8B

REPLACEMENT SHEET

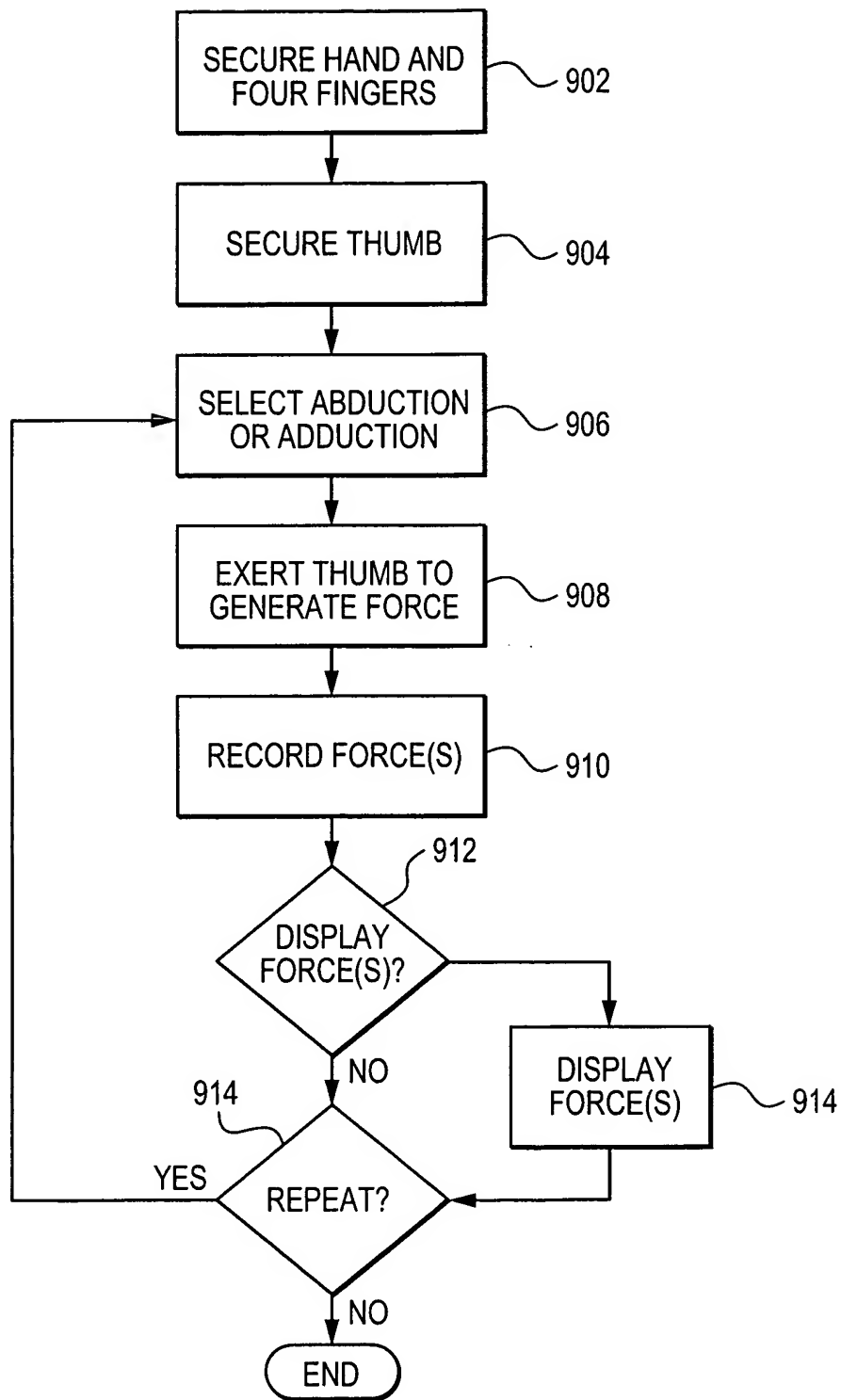


FIG. 9

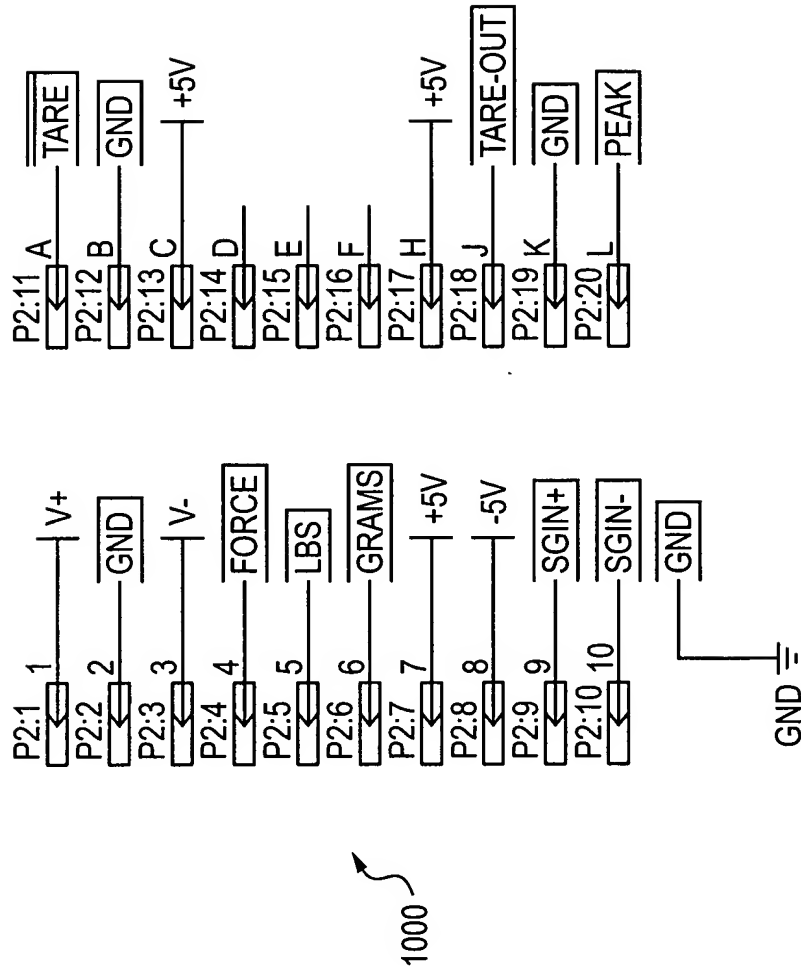


FIG. 10

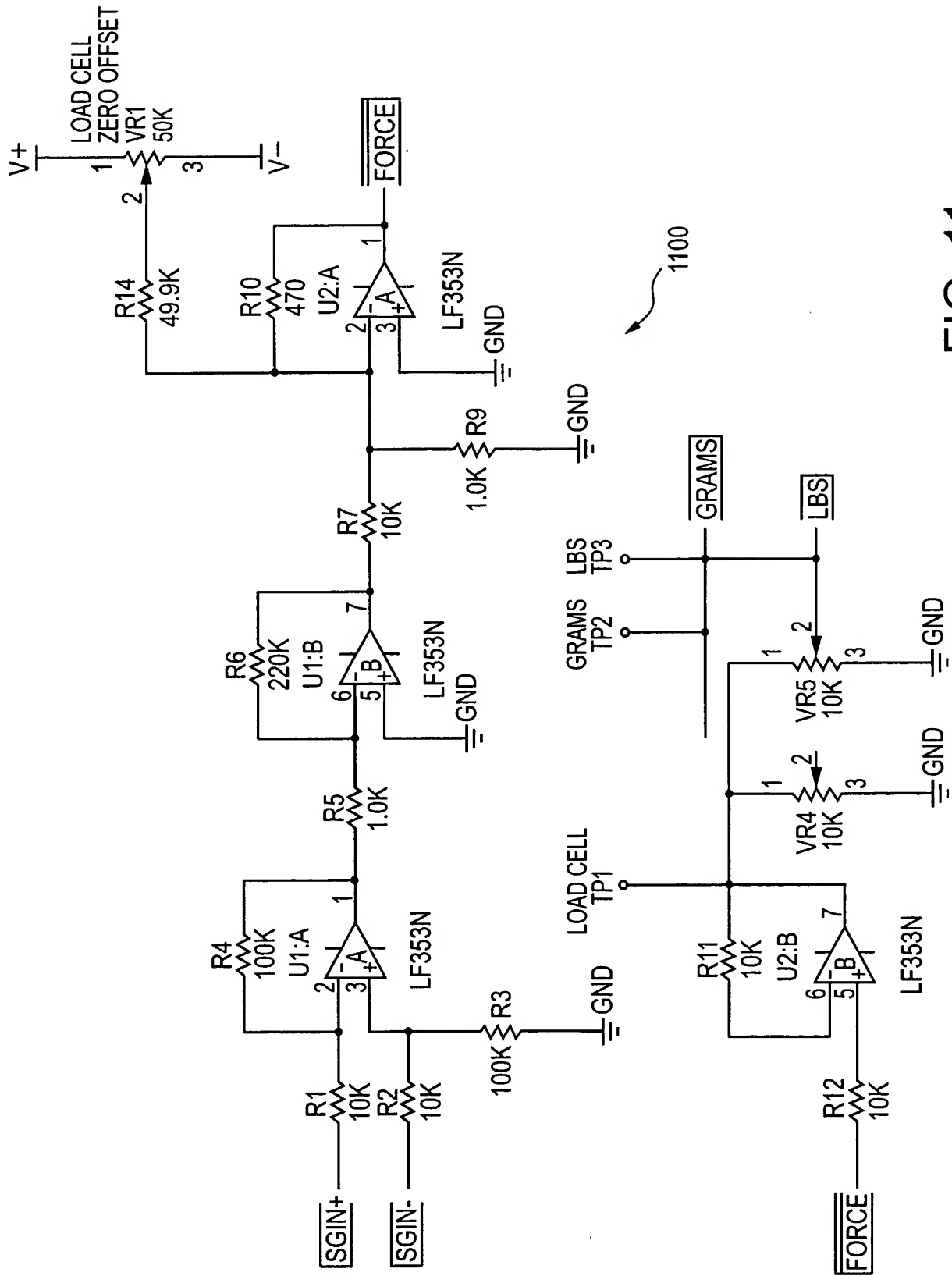


FIG. 11

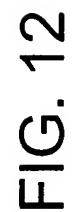


FIG. 12

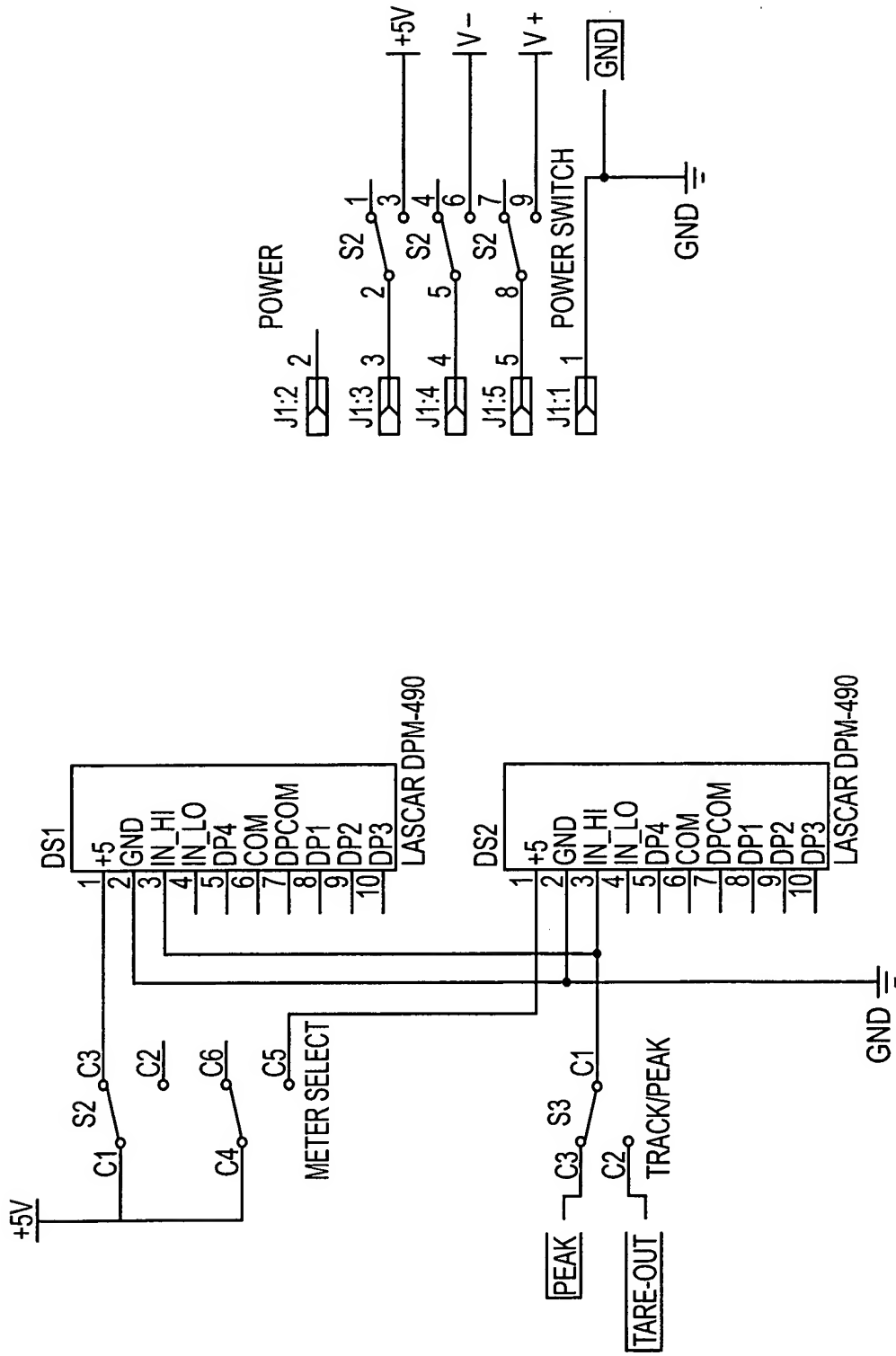


FIG. 13

FIG. 14

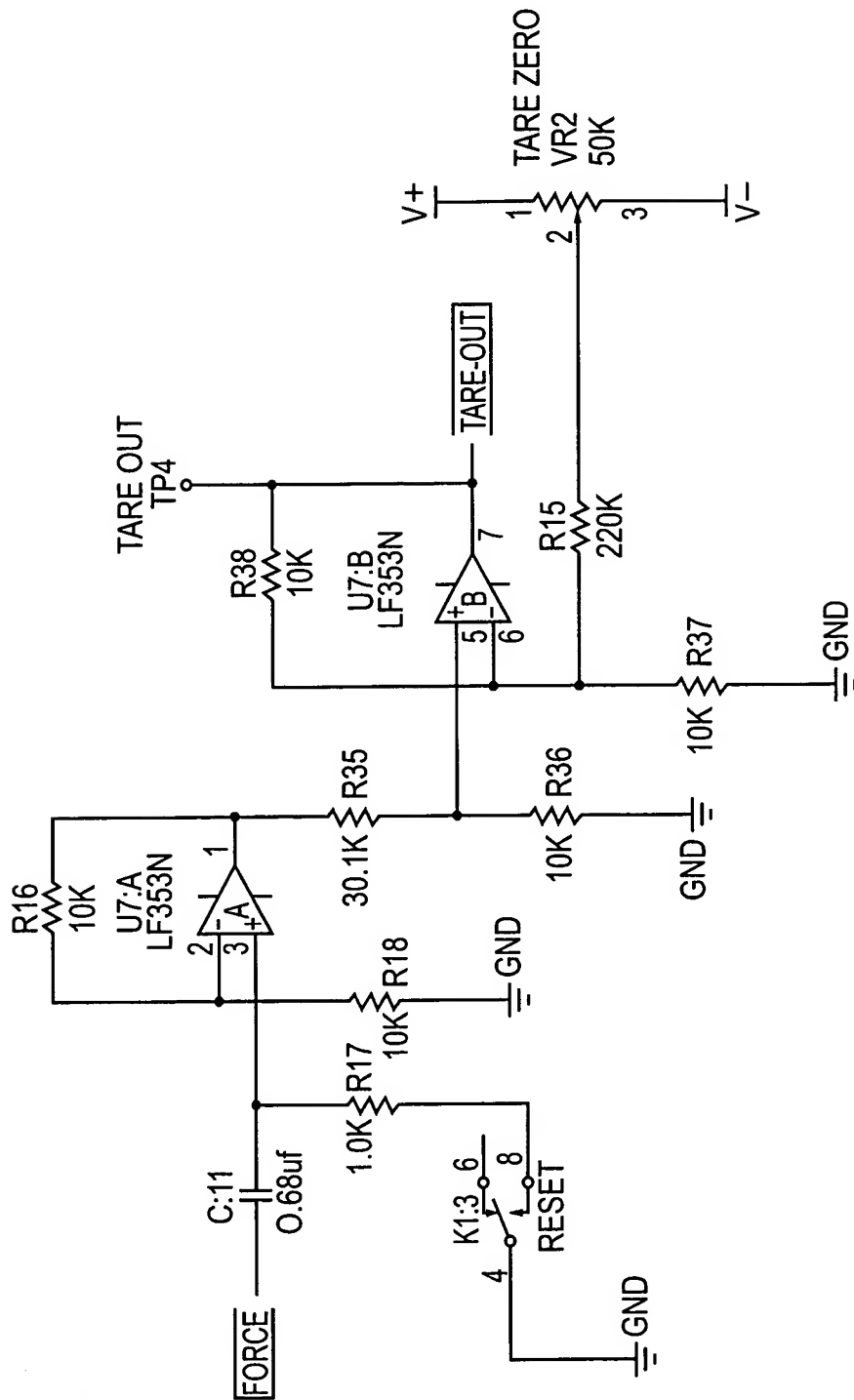


FIG. 15

REPLACEMENT SHEET

CHARACTERISTICS OF SUBJECTS-AGE, WEIGHT, SEX FOR RIGHT DOMINANT										
MALE-WEIGHT										
AGE	50-99	100-124	125-149	150-174	175-199	200-224	225-249	250-300	TOTAL	
5 TO 9									23	
10 TO 14	2	12	9						22	
15 TO 19			9	10	3				26	
20 TO 24			3	16	5	2			24	
25 TO 29			2	8	11	3			21	
30 TO 34			2	6	11	1	1		25	
35 TO 39			1	7	11	4	1		19	
40 TO 44			1	3	9	3	3		25	
45 TO 49			1	4	12	5	2	1	26	
50 TO 54			1	2	12	7	3	1	20	
55 TO 59			2	6	10	1	1		23	
60 TO 64			3	7	9	3	1		21	
65 TO 69			4	8	6	3				
TOTAL	2	12	38	77	99	32	12	3	275	
FEMALE-WEIGHT										
AGE	50-99	100-124	125-149	150-174	175-199	200-224	225-249	TOTAL	GRAND TOTAL	
5 TO 9	2	2						4	4	
10 TO 14	3	17	4					24	47	
15 TO 19		8	13	2				23	45	
20 TO 24		4	15	3	2			24	50	
25 TO 29	1	8	8	6	1		1	25	49	
30 TO 34			12	4	6			22	43	
35 TO 39	1	8	10	7	4			31	56	
40 TO 44			9	8	2	2		21	40	
45 TO 49			8	15		1		24	49	
50 TO 54			4	13	2	1		20	46	
55 TO 59			11	6	3			20	40	
60 TO 64			5	8	6		1	20	43	
65 TO 69			5	9	7			21	42	
TOTAL	5	45	104	81	33	4	3	275		

FIG. 16

REPLACEMENT SHEET

JOINT AGE WEIGHT ABDUCTION-RIGHT

JOINT AGE WEIGHT ABDUCTION-RIGHT MALE-WEIGHT									JOINT AGE WEIGHT ABDUCTION-RIGHT FEMALE-WEIGHT					
AGE	50-99	100-124	125-149	150-174	175-199	200-224	225-249	250-300	50-99	100-124	125-149	150-174	175-199	200-224
5 TO 9														
10 TO 14	2.6	3.1							1.9	2.5	2.7			
15 TO 19		3.8	4.9	5.3						2.8	2.7			
20 TO 24		4.3	6.0	6.8						3.7	3.0	2.6		
25 TO 29			5.8	6.2	5.4					2.2	3.3	3.5		
30 TO 34			4.4	5.7							3.1	3.1	3.0	
35 TO 39			5.1	5.9	6.7				2.7	3.1	2.9	4.0		
40 TO 44			4.2	4.6	5.4	5.4				2.9	2.9			
45 TO 49			4.5	5.2	6.1					2.9	3.0			
50 TO 54				5.3	6.8	6.9					3.3	2.5		
55 TO 59			3.3	5.0							2.9	3.2	3.0	
60 TO 64		4.0	3.8	3.5	5.7						1.9	2.7	2.9	
65 TO 69		3.3	3.7	4.4	4.4						2.5	2.7	3.1	
	ANGLE=30°								ANGLE=30°					
5 TO 9														
10 TO 14	2.2	2.6							1.3	2.0	2.2			
15 TO 19		3.3	4.4	4.4						2.4	2.3			
20 TO 24		4.0	5.4	5.9						3.0	2.6	2.2		
25 TO 29			5.2	5.6	4.3					1.7	2.9	2.8		
30 TO 34			3.8	4.8							2.4	2.4	2.4	
35 TO 39			3.8	5.1	5.8				2.0	2.5	2.4	3.6		
40 TO 44			2.8	3.9	4.2	4.7				2.6	2.4			
45 TO 49			3.8	4.8	5.3					2.4	2.6			
50 TO 54				4.8	6.4	6.3				3.0	2.1			
55 TO 59			2.9	4.3						2.5	2.7	2.6		
60 TO 64		3.8	3.3	3.1	4.9					1.5	2.5	2.5		
65 TO 69		3.0	3.3	4.1	3.7					2.1	2.3	2.7		
	ANGLE=45°								ANGLE=45°					
5 TO 9														
10 TO 14	1.5	1.9							0.8	1.2	1.6			
15 TO 19		2.7	3.4	4.3						1.8	1.7			
20 TO 24		3.0	3.9	5.2						2.3	1.9	2.0		
25 TO 29			3.8	4.3	2.8					1.2	2.0	2.2		
30 TO 34			2.9	3.8							2.0	2.2	1.7	
35 TO 39			3.0	3.9	5.6				1.2	2.0	1.9	2.3		
40 TO 44			2.7	3.1	2.9	3.5				1.8	1.8			
45 TO 49			3.4	3.7	3.8					1.7	2.1			
50 TO 54				3.4	3.7	4.2				2.2	1.4			
55 TO 59			2.3	3.1						1.8	2.2	1.9		
60 TO 64		3.0	2.5	2.3	4.1					0.8	1.8	1.7		
65 TO 69		2.2	2.7	3.1	2.8					1.5	1.5	1.9		
	ANGLE=60°								ANGLE=60°					

FIG. 17

REPLACEMENT SHEET

JOINT AGE WEIGHT ABDUCTION-LEFT

AGE	JOINT AGE WEIGHT ABDUCTION-LEFT MALE-WEIGHT								JOINT AGE WEIGHT ABDUCTION-LEFT FEMALE-WEIGHT					
	50-99	100-124	125-149	150-174	175-199	200-224	225-249	250-300	50-99	100-124	125-149	150-174	175-199	200-224
5 TO 9														
10 TO 14		2.3	2.7						1.6	2.4	2.6			
15 TO 19			3.4	4.7	5.5					2.6	2.4			
20 TO 24			3.9	5.0	6.5					3.2	2.5	2.3		
25 TO 29				5.5	5.7	8.4				2.2	2.7	2.9		
30 TO 34				3.8	5.4						2.6	3.0	2.2	
35 TO 39				4.5	5.5	6.0			2.3	2.7	2.9		3.9	
40 TO 44				3.2	4.3	5.1	4.3				2.2	2.6		
45 TO 49				4.5	4.7	5.5					2.6	2.6		
50 TO 54					4.6	5.8	6.0				1.9	2.2		
55 TO 59				3.3	4.0						2.3	2.7	3.0	
60 TO 64			3.5	3.3	3.0	5.0					1.7	2.3	2.5	
65 TO 69			3.0	3.2	3.5	4.1					1.9	2.3	3.0	
ANGLE=30°														
5 TO 9														
10 TO 14		2.0	2.1						1.3	2.0	2.5			
15 TO 19			2.5	4.2	4.3					2.5	2.0			
20 TO 24			3.4	4.3	4.6					2.2	2.2	1.7		
25 TO 29				4.9	5.1	5.4				1.7	2.6	2.6		
30 TO 34				3.1	4.5						2.4	2.7	2.0	
35 TO 39				3.9	4.8	5.4			2.0	2.5	2.0		3.2	
40 TO 44				2.7	3.5	4.2	4.0				1.8	1.9		
45 TO 49				3.2	4.0	4.7					2.2	2.3		
50 TO 54					4.1	4.8	5.5				2.0	2.0		
55 TO 59				2.8	3.8						2.0	2.3	2.6	
60 TO 64			3.1	3.0	2.4	4.4					1.2	2.0	2.0	
65 TO 69			2.6	2.8	3.0	3.4					1.5	2.0	2.5	
ANGLE=45°														
5 TO 9														
10 TO 14		1.4	1.6						0.9	1.2	1.6			
15 TO 19			2.3	3.2	3.5					2.0	1.5			
20 TO 24			2.9	3.3	3.7					1.8	1.5	1.2		
25 TO 29				3.6	4.2	3.2				1.1	1.9	1.9		
30 TO 34				2.6	3.9						1.7	1.8	1.7	
35 TO 39				2.7	3.5	4.8			1.2	1.8	1.4		2.7	
40 TO 44				2.0	2.9	3.1	3.1				1.2	1.6		
45 TO 49				3.2	2.8	3.5					1.6	1.7		
50 TO 54					3.0	3.8	4.4				1.5	1.5		
55 TO 59				2.0	2.9						1.5	1.5	1.9	
60 TO 64			2.8	2.3	1.8	3.5					0.8	1.5	1.5	
65 TO 69			1.7	2.2	2.1	2.7					1.2	1.4	1.9	
ANGLE=60°														

FIG. 18

REPLACEMENT SHEET

JOINT AGE WEIGHT ADDUCTION-RIGHT

AGE	JOINT AGE WEIGHT ADDUCTION-RIGHT MALE-WEIGHT								JOINT AGE WEIGHT ADDUCTION-RIGHT FEMALE-WEIGHT					
	50-99	100-124	125-149	150-174	175-199	200-224	225-249	250-300	50-99	100-124	125-149	150-174	175-199	200-224
5 TO 9														
10 TO 14		11.8	12.8						10.9	10.7	11.9			
15 TO 19			14.3	16.2	16.4					11.0	13.5			
20 TO 24			15.2	17.4	18.5					13.2	14.4	14.0		
25 TO 29				17.8	19.7	20.8				10.8	15.2	16.0		
30 TO 34				17.4	17.4						12.9	16.4	16.2	
35 TO 39				18.5	16.9	19.2				12.0	14.1	14.4	12.2	
40 TO 44				17.1	16.0	20.9	18.0				13.7	12.9		
45 TO 49				15.3	17.1	18.2					12.0	14.8		
50 TO 54					16.5	17.3	15.6				13.1	13.8		
55 TO 59				14.3	16.1						13.5	16.2	15.6	
60 TO 64			12.9	13.8	12.4	16.3					12.0	13.0	13.3	
65 TO 69			12.6	13.4	15.5	13.1					11.0	12.3	14.1	
ANGLE=30°														
5 TO 9														
10 TO 14		11.9	13.3						11.9	11.3	12.8			
15 TO 19			15.9	18.0	18.6					12.7	15.0			
20 TO 24			18.0	18.4	20.7					14.9	15.1	15.2		
25 TO 29				19.1	21.3	20.9				11.6	16.6	17.8		
30 TO 34				19.4	18.8						14.2	17.4	17.2	
35 TO 39				20.7	18.4	19.2				12.6	14.9	15.7	15.4	
40 TO 44				17.5	16.2	19.9	20.4				14.5	13.7		
45 TO 49				16.9	19.1	19.4					13.4	16.1		
50 TO 54					18.2	18.9	16.9				15.7	15.1		
55 TO 59				14.6	17.5						15.1	16.9	17.5	
60 TO 64			12.4	15.6	13.6	17.1					11.9	14.9	14.7	
65 TO 69			13.5	14.6	16.5	15.4					12.7	12.8	15.1	
ANGLE=45°														
5 TO 9														
10 TO 14		13.2	14.2						12.5	13.2	14.2			
15 TO 19			17.5	19.3	19.1					13.4	16.0			
20 TO 24			20.3	20.5	21.7					15.8	16.7	14.9		
25 TO 29				21.2	22.2	22.1				12.3	18.4	18.9		
30 TO 34				20.3	20.9						15.0	19.3	15.7	
35 TO 39				21.8	20.3	20.3				14.1	17.1	17.1	14.4	
40 TO 44				20.7	18.1	22.1	21.2				16.8	14.6		
45 TO 49				18.5	20.5	21.1	19.0				14.4	16.4		
50 TO 54					20.3	21.1					15.5	15.8		
55 TO 59				15.4	18.8						15.7	17.6	17.9	
60 TO 64			14.2	16.1	15.2	19.1					12.7	15.6	15.8	
65 TO 69			14.8	15.8	17.6	16.4					13.2	14.3	16.0	
ANGLE=60°														

FIG. 19

REPLACEMENT SHEET

JOINT AGE WEIGHT ADDUCTION-LEFT

JOINT AGE WEIGHT ADDUCTION-LEFT MALE-WEIGHT									JOINT AGE WEIGHT ADDUCTION-LEFT FEMALE-WEIGHT					
AGE	50-99	100-124	125-149	150-174	175-199	200-224	225-249	250-300	50-99	100-124	125-149	150-174	175-199	200-224
5 TO 9														
10 TO 14		10.8	12.5						10.1	10.2	12.4			
15 TO 19			13.9	16.3	19.0					11.5	12.4			
20 TO 24			15.0	16.7	17.0					12.7	13.4	12.7		
25 TO 29				17.2	18.9	14.4				12.1	13.9	14.6		
30 TO 34				17.3	16.8						12.1	15.6	16.0	
35 TO 39				19.5	16.5	17.8			12.2	13.2	14.4	13.2		
40 TO 44				14.5	15.7	18.9	17.9				12.3	12.2		
45 TO 49				15.6	17.3	17.9					10.5	14.0		
50 TO 54					17.2	16.3	15.3				12.7	12.7		
55 TO 59				12.4	15.4						13.1	14.4	13.5	
60 TO 64			11.5	13.5	11.6	16.2					11.1	12.7	12.8	
65 TO 69			12.9	13.3	14.3	14.7					11.0	11.8	12.9	
	ANGLE=30°								ANGLE=30°					
5 TO 9														
10 TO 14		12.1	13.4						11.3	10.2	12.9			
15 TO 19			15.8	18.1	20.9					10.8	13.4			
20 TO 24			16.3	18.3	19.8					13.7	14.4	14.1		
25 TO 29				18.7	21.0	20.6				11.9	15.2	17.2		
30 TO 34				17.0	18.1						13.8	16.9	18.4	
35 TO 39				20.7	18.8	18.2			12.0	14.6	16.5	13.7		
40 TO 44				14.2	15.8	18.5	17.8				12.5	12.1		
45 TO 49				15.7	17.8	18.3					11.1	15.1		
50 TO 54					18.5	17.3	16.6				15.1	13.5		
55 TO 59				13.6	17.6						14.7	14.5	15.8	
60 TO 64			11.2	15.1	13.2	16.5					12.1	13.9	15.1	
65 TO 69			13.3	14.4	16.0	16.8					12.6	13.2	14.3	
	ANGLE=45°								ANGLE=45°					
5 TO 9														
10 TO 14		12.4	14.5						11.6	10.8	13.8			
15 TO 19			17.1	19.2	20.3					11.6	15.4			
20 TO 24			17.7	20.7	20.9					14.7	15.7	14.9		
25 TO 29				20.1	22.3	21.8				11.8	16.5	18.3		
30 TO 34				18.6	19.7						13.9	18.4	16.8	
35 TO 39				21.3	20.2	20.3			12.8	15.2	15.7	14.3		
40 TO 44				16.1	17.3	21.0	19.0				13.6	13.2		
45 TO 49				17.4	20.2	20.9					12.8	16.3		
50 TO 54					20.1	20.1	18.4				16.0	14.6		
55 TO 59				15.3	19.2						16.0	16.4	18.7	
60 TO 64			11.4	15.6	14.4	18.7					13.3	15.8	16.5	
65 TO 69			14.2	15.1	17.9	17.2					13.6	14.4	15.0	
	ANGLE=60°								ANGLE=60°					

FIG. 20

GRIP STRENGTH BY AGE AND WEIGHT FOR MALE AND FEMALE LEFT AND RIGHT

MALE LEFT/RIGHT GRIP								
WEIGHT	50 TO 99	100 TO 124	125 TO 149	150 TO 174	175 TO 199	200 TO 224	225 TO 249	250 TO 300
AGE								
10 TO 14		59/66	68/70	101/104	110/120	129/137		
15 TO 19			93/97	118/125	130/137			
20 TO 24			94/110	114/117	128/132			
25 TO 29				105/108	120/126			
30 TO 34			80/91	110/114	117/126			
35 TO 39				94/96	105/108	126/136		
40 TO 44				97/98	96/103	128/139	111/119	
45 TO 49					97/100	119/125		
50 TO 54					98/101	106/110	105/113	
55 TO 59								
60 TO 64			70/82	74/82	77/83	95/102		
65 TO 69			73/78	81/86	89/92	84/84		

FEMALE LEFT/RIGHT GRIP								
WEIGHT	50 TO 99	100 TO 124	125 TO 149	150 TO 174	175 TO 199	200 TO 224	225 TO 249	250 TO 300
AGE								
10 TO 14		56/56	63/59	74/70				
15 TO 19			66/60	77/71				
20 TO 24			84/78	78/71				
25 TO 29			58/51	81/74				
30 TO 34				72/64				
35 TO 39			66/61	79/72	79/75			
40 TO 44				65/62	81/80			
45 TO 49				68/64				
50 TO 54				66/65				
55 TO 59				69/64				
60 TO 64				58/54	77/73			
65 TO 69				66/59	71/66			

FIG. 21

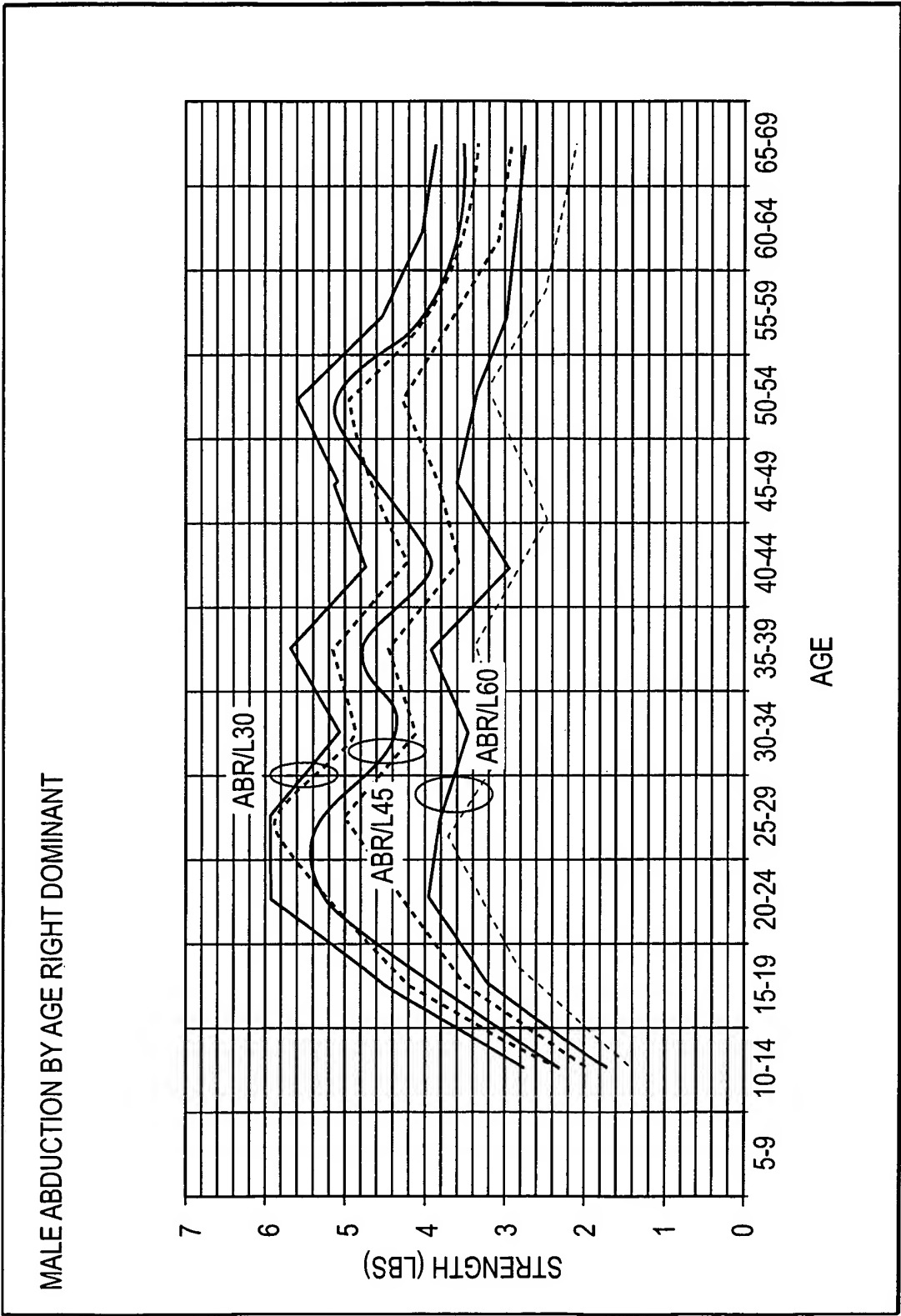


FIG. 22

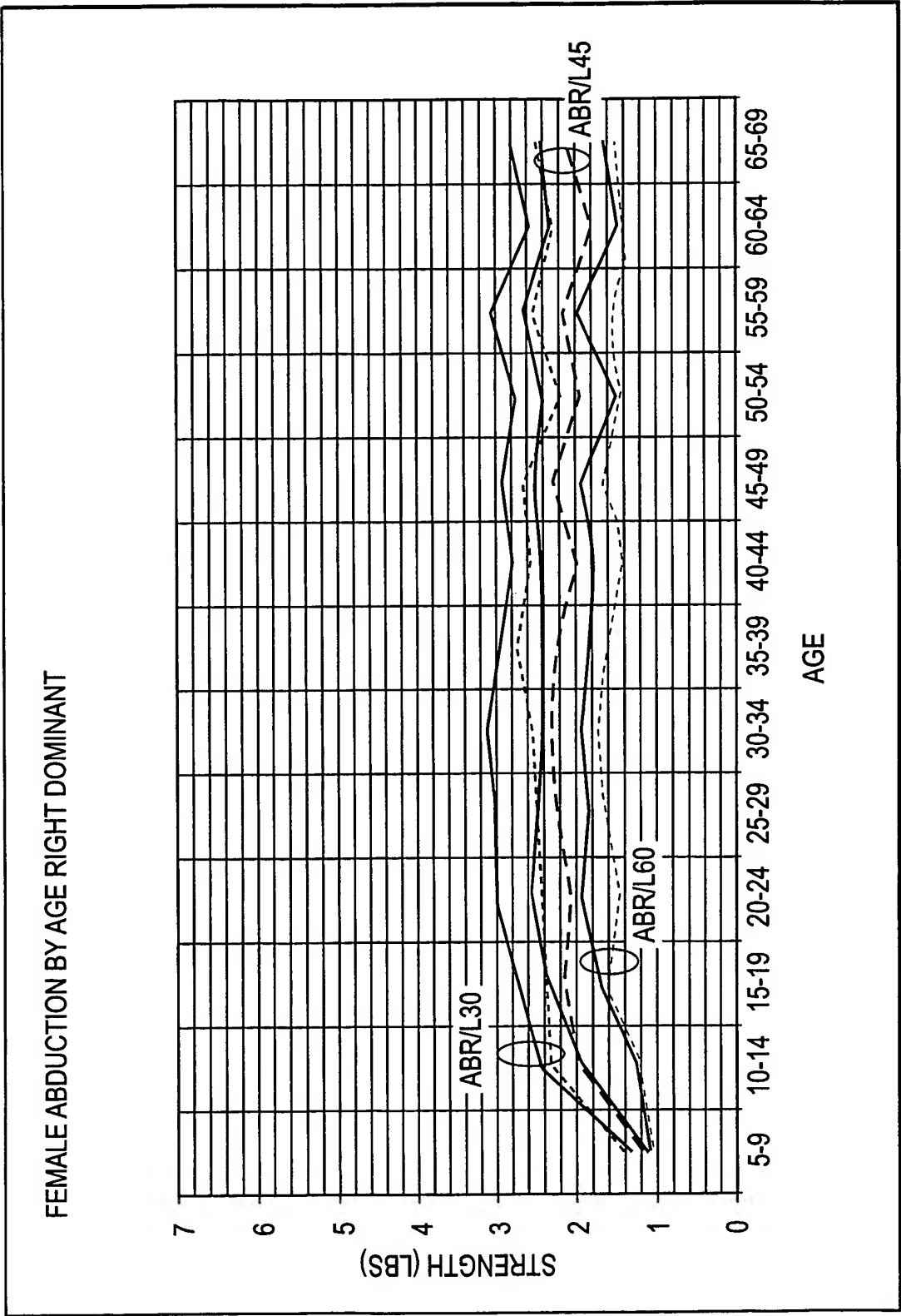


FIG. 23

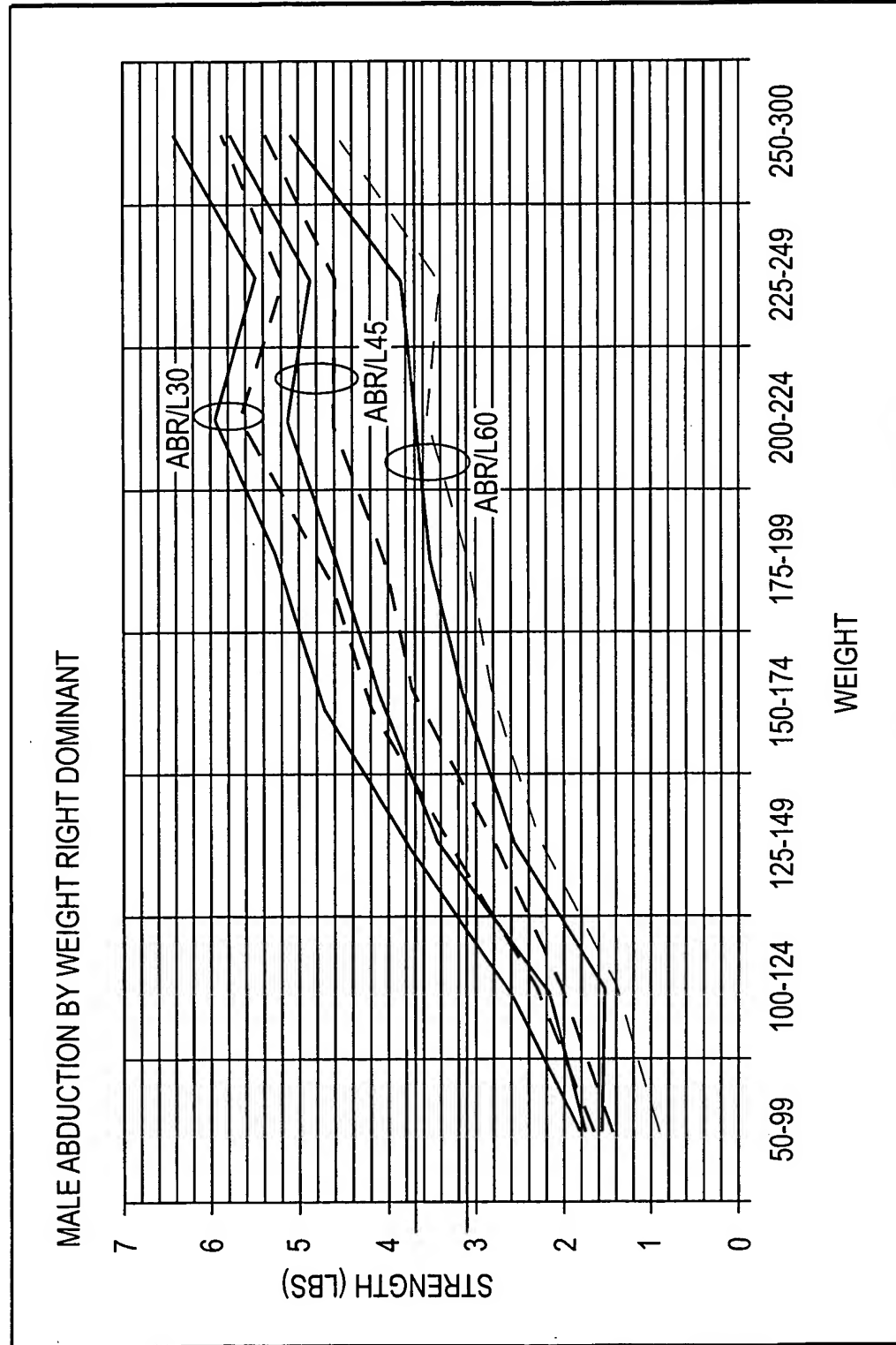


FIG. 24

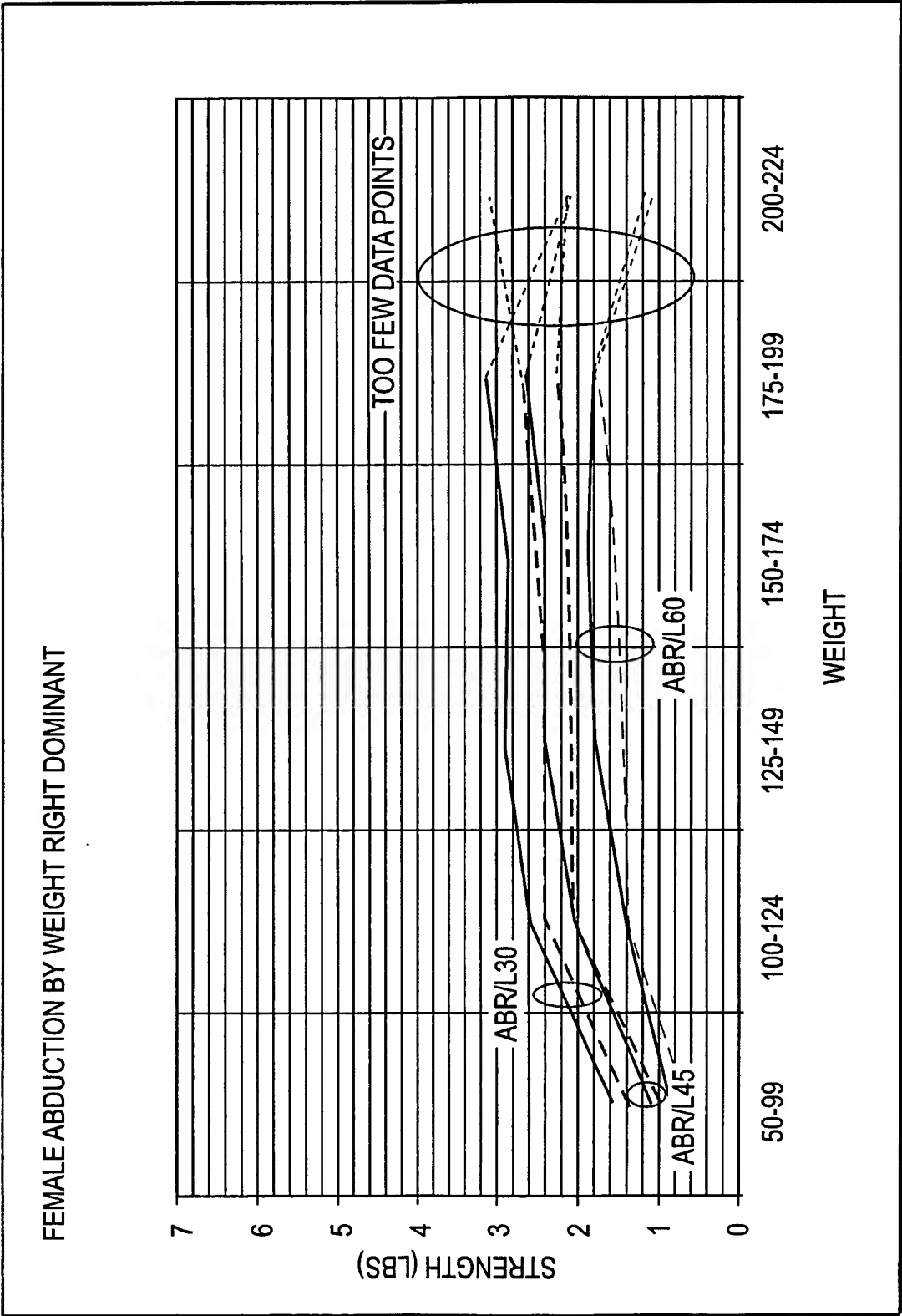


FIG. 25

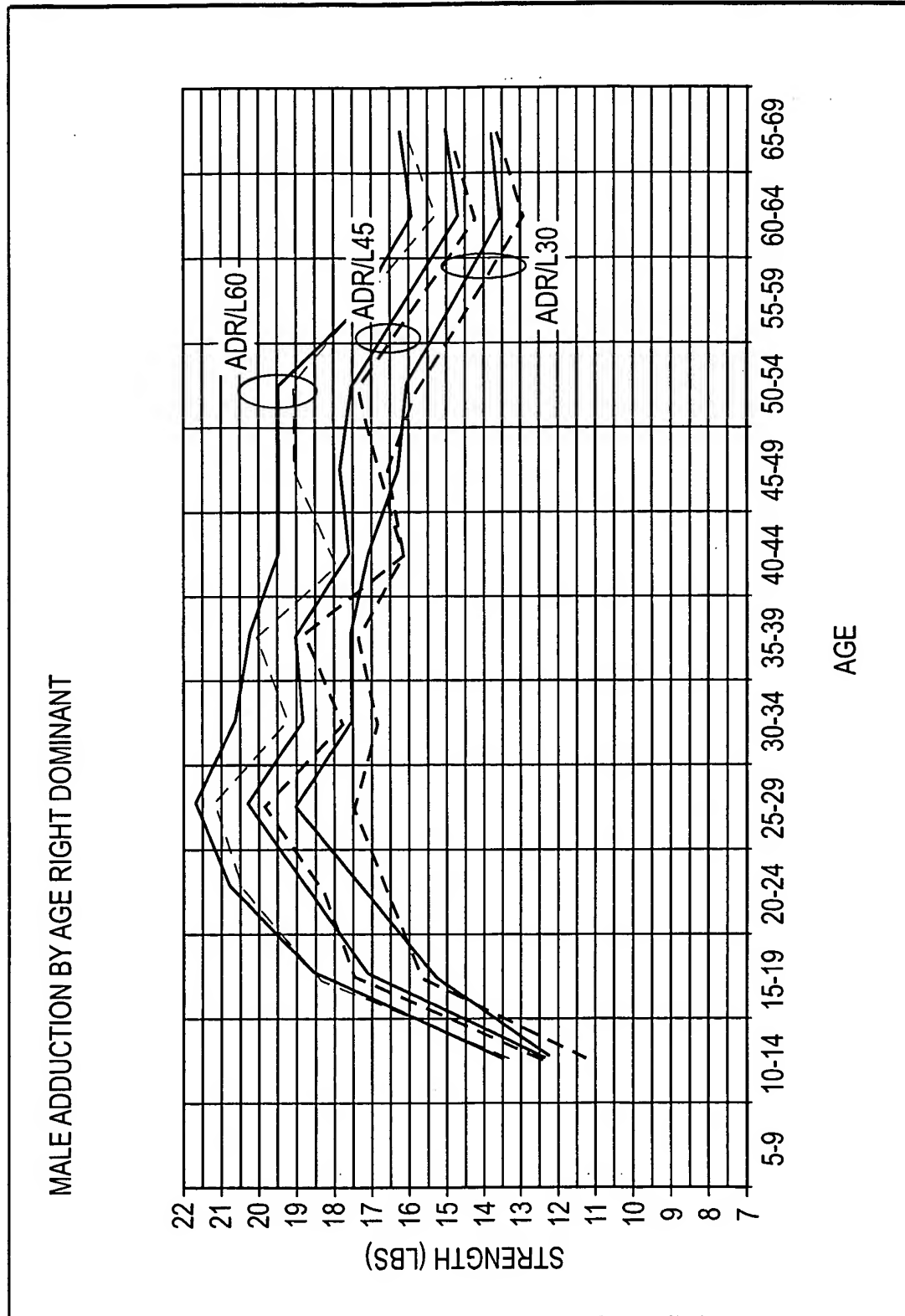


FIG. 26

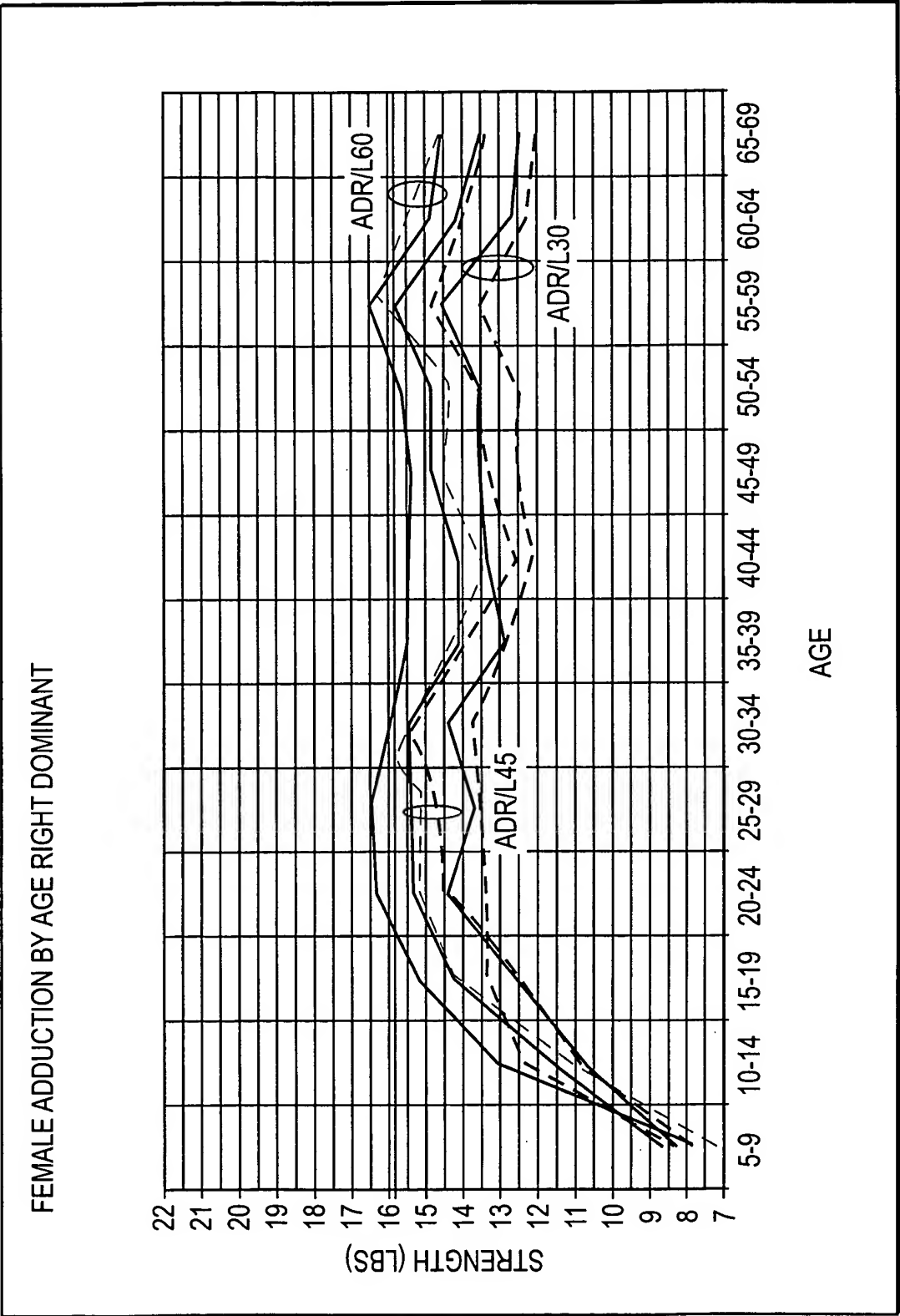


FIG. 27

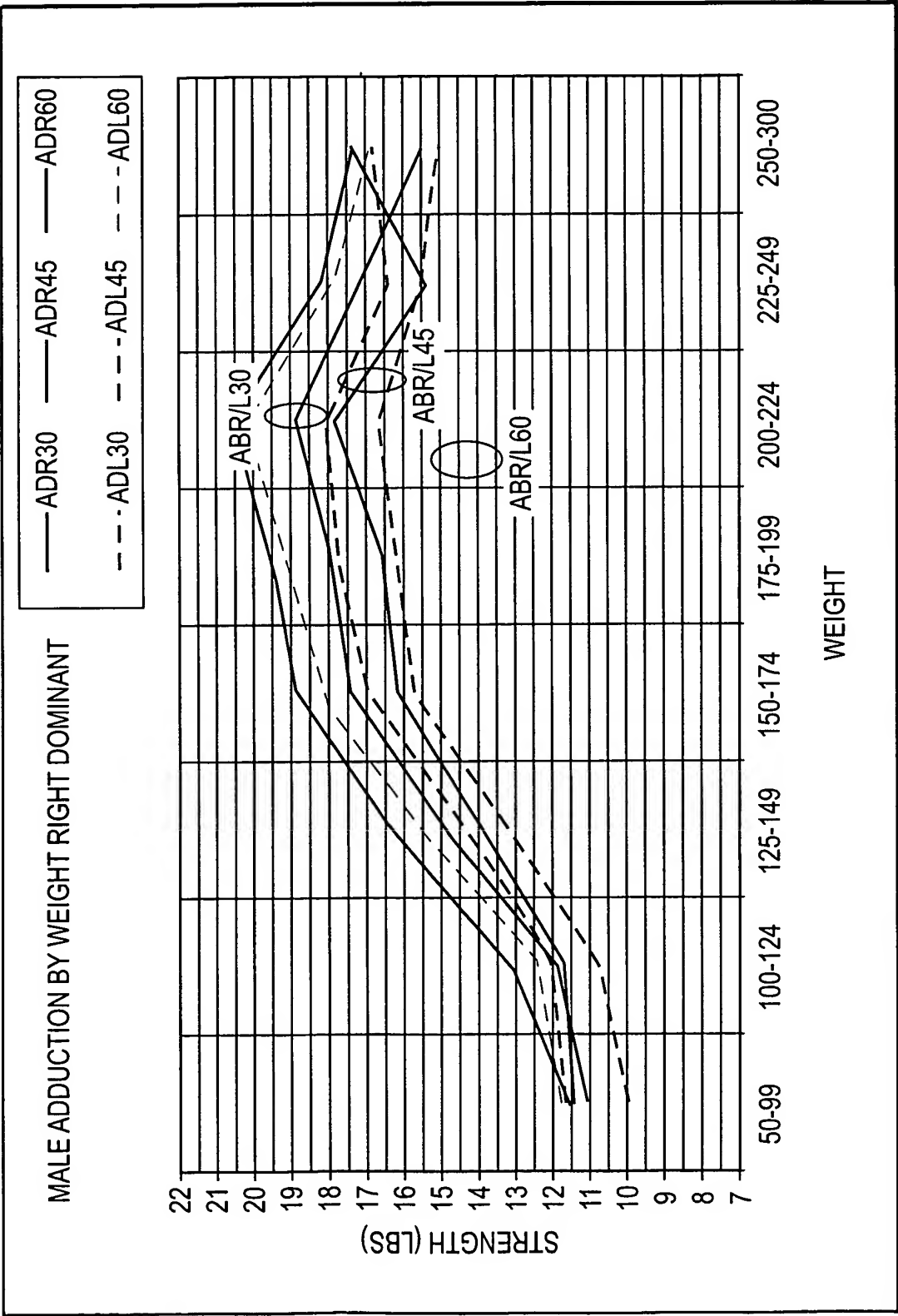


FIG. 28

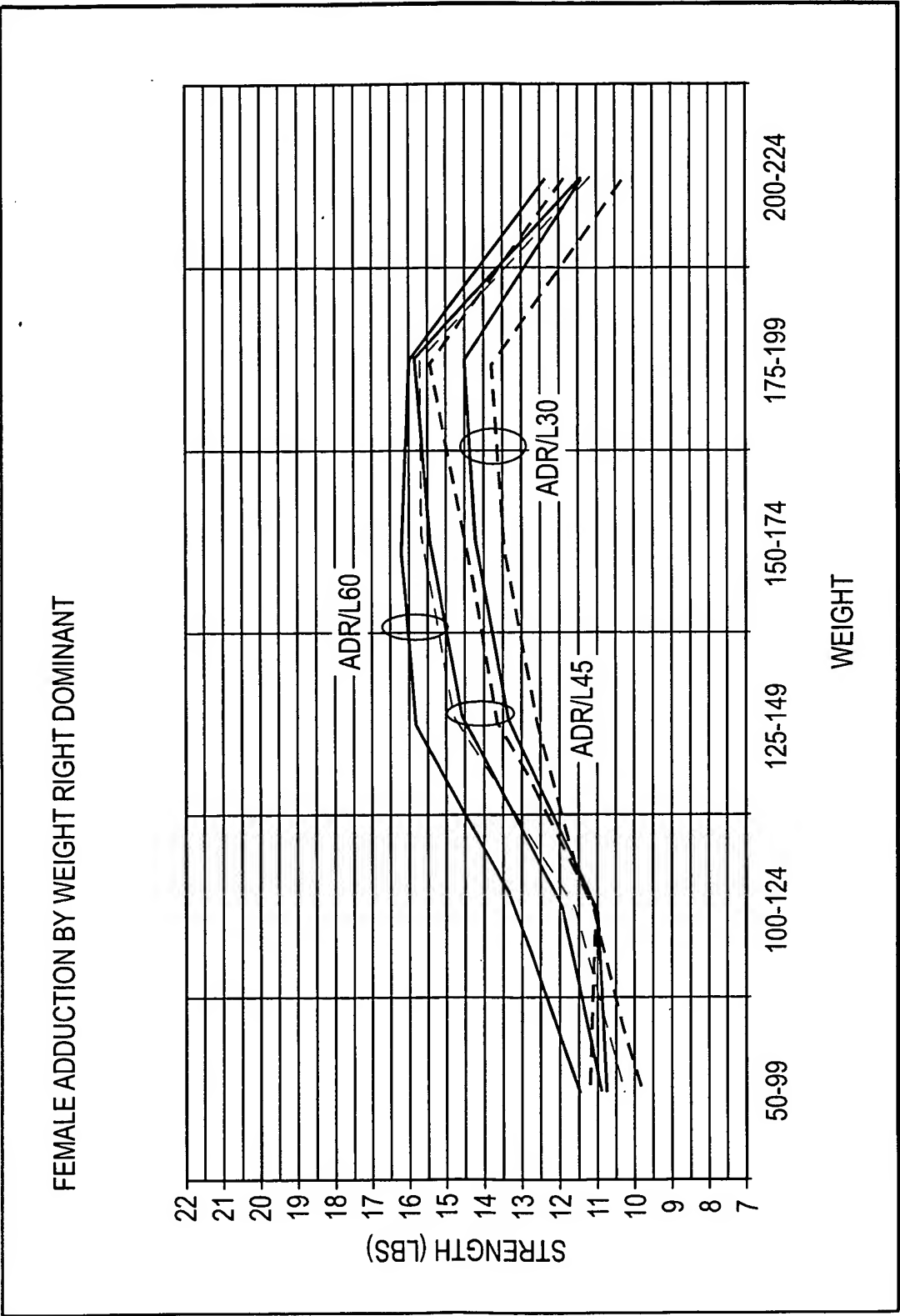


FIG. 29

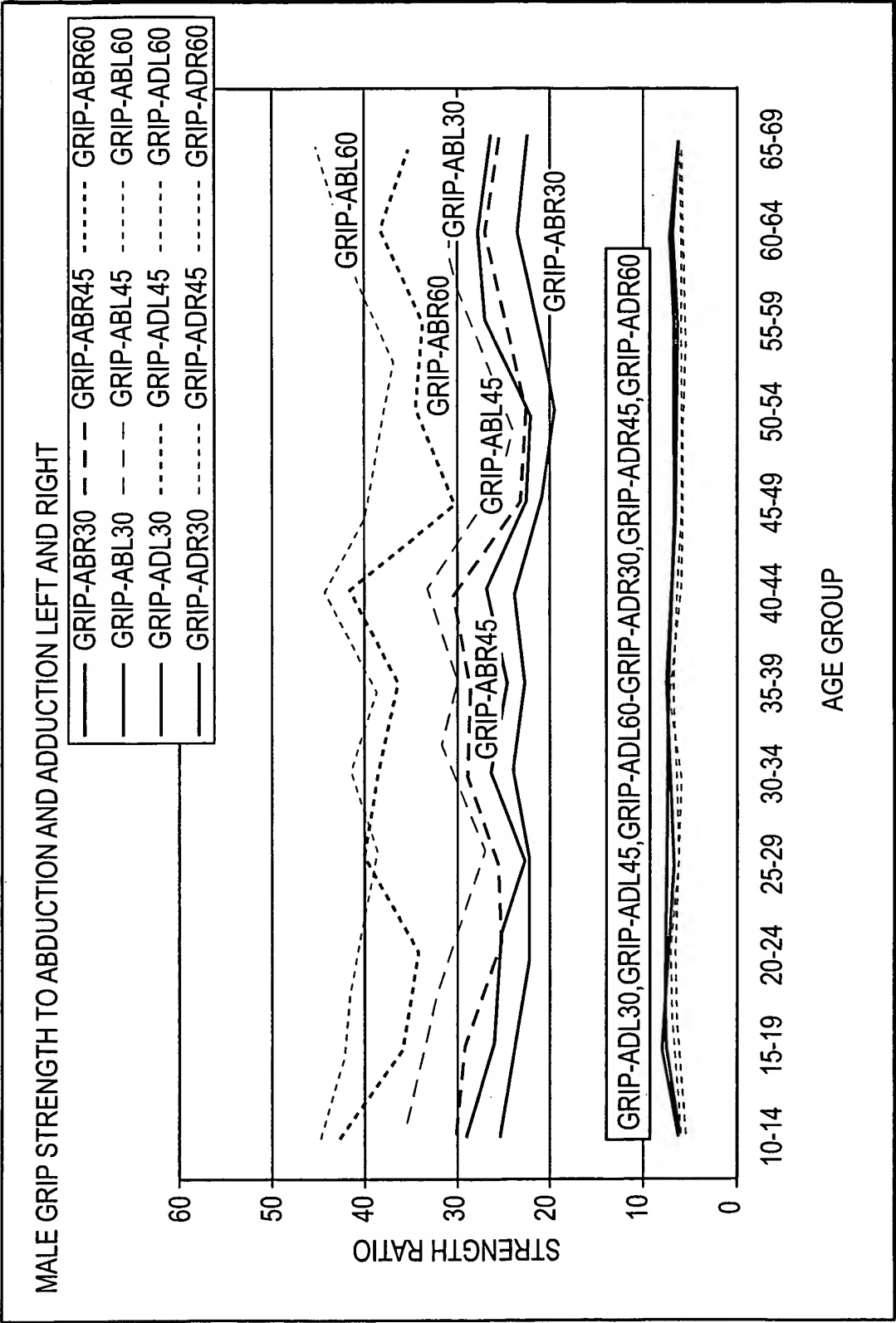


FIG. 30

CORRELATION COEFFICIENTS FOR ALL SUBJECTS																
MALES																
VARIABLES	WEIGHT	R-GRIP	L-GRIP	ABR30	ABR45	ABR60	ADR30	ADR45	ADR60	ABL30	ABL45	ABL60	ADL30	ADL45	ADL60	
AGE	0.41	-0.16	-0.16	-0.01	0.01	-0.02	-0.11	-0.08	-0.08	-0.07	-0.02	-0.03	-0.07	-0.11	-0.08	
WEIGHT		0.46	0.48	0.5	0.46	0.46	0.35	0.35	0.35	0.5	0.46	0.42	0.33	0.33	0.38	
R-GRIP			0.46	0.75	0.67	0.64	0.74	0.73	0.75	0.73	0.64	0.59	0.65	0.65	0.68	
L-GRIP				0.77	0.69	0.64	0.73	0.72	0.74	0.77	0.69	0.64	0.68	0.68	0.71	
ABR30					0.85	0.85	0.62	0.63	0.65	0.84	0.83	0.8	0.57	0.55	0.61	
ABR45						0.87	0.55	0.57	0.6	0.78	0.81	0.77	0.52	0.5	0.56	
ABR60							0.52	0.55	0.56	0.73	0.75	0.78	0.55	0.5	0.52	
ADR30								0.86	0.86	0.6	0.56	0.5	0.77	0.73	0.74	
ADR45										0.57	0.56	0.51	0.79	0.8	0.82	
ADR60										0.6	0.59	0.53	0.79	0.79	0.83	
ABL30											0.88	0.81	0.57	0.61	0.6	
ABL45												0.87	0.55	0.55	0.57	
ABL60													0.51	0.49	0.5	
ADL30														0.86	0.82	
ADL45																
FEMALES																
VARIABLES	WEIGHT	R-GRIP	L-GRIP	ABR30	ABR45	ABR60	ADR30	ADR45	ADR60	ABL30	ABL45	ABL60	ADL30	ADL45	ADL60	
AGE	0.52	-0.04	-0.01	0.01	0.07	0	0.07	0.08	0.07	0.03	0.01	0.02	0.06	0.13	0.19	
WEIGHT		0.35	0.37	0.23	0.26	0.2	0.28	0.32	0.29	0.21	0.17	0.22	0.26	0.33	0.31	
R-GRIP			0.49	0.58	0.55	0.51	0.56	0.62	0.62	0.42	0.4	0.39	0.49	0.52	0.55	
L-GRIP				0.49	0.45	0.41	0.53	0.58	0.57	0.49	0.46	0.41	0.56	0.58	0.58	
ABR30					0.83	0.73	0.41	0.42	0.48	0.67	0.58	0.56	0.37	0.35	0.38	
ABR45						0.81	0.35	0.38	0.43	0.56	0.56	0.57	0.31	0.31	0.34	
ABR60							0.32	0.32	0.36	0.51	0.51	0.57	0.3	0.31	0.34	
ADR30								0.88	0.85	0.32	0.3	0.23	0.79	0.74	0.71	
ADR45									0.88	0.3	0.31	0.26	0.74	0.75	0.74	
ADR60										0.36	0.35	0.26	0.72	0.72	0.74	
ABL30											0.82	0.63	0.4	0.4	0.4	
ABL45												0.77	0.39	0.38	0.41	
ABL60													0.3	0.29	0.31	
ADL30														0.88	0.8	
ADL45															0.88	

FIG. 31